

### **REMARKS**

By this amendment, claims 1 and 4-7 have been amended, withdrawn claims 8-11 have been canceled without prejudice or disclaimer, and new claims 12-17 have been added. Accordingly, claims 1-7 and 12-17 are currently pending in the application, of which claim 1 is independent.

Applicant respectfully submits that the above amendments do not add new matter to the application and are fully supported by the specification. Support for the amendments and added claims may be found at least in Figure 1 and at page 4, line 27 - page 5, line 11 of the specification.

In view of the above amendments and the following Remarks, Applicant respectfully requests reconsideration and timely withdrawal of the pending objections and rejections for the reasons discussed below.

#### ***Rejections Under 35 U.S.C. § 102***

Claims 1-7 stand rejected under 35 U.S.C. § 102(b/e) as being allegedly anticipated by U.S. Patent Application Publication No. 2003/0209720 applied for by Okazaki, *et al.* ("Okazaki").

In order for a rejection under 35 U.S.C. § 102(b/e) to be proper, a single reference must disclose every claimed feature. To be patentable, a claim need only recite a single novel feature that is not disclosed in the cited reference. Thus, the failure of a cited reference to disclose one or more claimed features renders the 35 U.S.C. § 102(b/e) rejection improper.

Applicant respectfully submits that the rejection of amended claim 1 must be withdrawn because Okazaki fails to disclose every claimed feature. Amended claim 1 recites, *inter alia*:

an ohmic electrode layer formed on the gallium nitride-based semiconductor layer,

wherein the ohmic electrode layer comprises a contact metal layer, a reflective metal layer, and a diffusion barrier layer, the reflective metal layer being disposed between the contact metal layer and the diffusion barrier layer

Okazaki fails to disclose or suggest at least the ohmic electrode of claim 1. Rather, Okazaki teaches that “the p-side electrode 26 has the Ni layer 32 for forming an ohmic contact with the p-GaN layer 24, the Mo layer 33 having a barrier function of blocking impurity diffusion, and the Al layer 34 having high reflectance to light generated in the element” (paragraph [0120]; Fig. 8). In other words, Okazaki’s Mo layer 33 is disposed between the Ni layer 32 and the Al layer 34. Thus, Okazaki fails to disclose “the reflective metal layer being disposed between the contact metal layer and the diffusion barrier layer.”

Furthermore, despite the Office Action’s assertions to the contrary at paragraph 5, pages 5-6, Applicant respectfully submits that it would not have been obvious to modify Okazaki in the manner claimed. In fact, Okazaki explicitly teaches that the Mo layer 33 is inserted between the ohmic layer (i.e., Ni layer 32) and the high-reflection layer (i.e., Al layer 34) to prevent interdiffusion of metal atoms between the ohmic layer and the high-reflection layer (see paragraphs [0121-0123]). Hence, in view of Okazaki’s purposeful placement of the Mo layer 33 between the Ni layer 32 and the Al layer 34, it would not have been obvious to arrange the Mo layer 33 on the Al layer 34, as the Office Action suggests because doing so would defeat the express purpose of Okazaki’s added Mo layer 33 (see paragraphs [0121-0123]).

Finally, Applicant respectfully submits that Okazaki’s n-side electrode 25, which includes Ti layer 28, Al layer 29, Ti layer 30, and Au layer 31, fails to teach or suggest at least an ohmic electrode layer comprising a diffusion barrier layer.

Moreover, the technical function of the electrode of the present application is different from that of Okazaki as well as its configuration. According to Okazaki, Ni layer 32 is used as an ohmic layer only, and Al layer 34 is used as a reflection layer only. On the contrary, the

contact metal layer of the present application, e.g., Ni layer, is used not only as a contact metal layer but also to enhance adhesion to a substrate and contribute to establish an ohmic contact. The reflection layer of the present application, e.g., Ag layer, is used not only as a reflection layer but also to enhance ohmic contact. That is, the reflection layer of the present application facilitates a low contact resistance by forming Ag-Ga solid solution through a reaction with GaN substrate via heat treatment.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 102(b/e) rejection of claim 1. Claims 2-7 depend from claim 1 and are allowable at least for this reason. Since none of the other prior art of record discloses or suggests all the features of the claimed invention, Applicant respectfully submits that independent claim 1, and all the claims that depend therefrom, are allowable.

***Rejections Under 35 U.S.C. § 103***

Claims 3 and 7 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Okazaki. Applicant respectfully traverses this rejection for at least the following reasons.

Applicant respectfully submits that amended claim 1 is allowable over Okazaki. Thus, claims 3 and 7 are allowable at least because they depend from an allowable claim 1.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of claims 3 and 7.

***Added Claims***

Added claims 12-17 are directed to additional features of the invention, which are not disclosed or suggested in the art of record. These claims are allowable at least because they depend from an allowable claim 1.

**CONCLUSION**

Applicant believes that a full and complete response has been made to the pending Office Action and respectfully submits that all of the stated grounds for rejection have been overcome or rendered moot. Accordingly, Applicant respectfully submits that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicant's undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

/hae-chan park/

Hae-Chan Park  
Reg. No. 50,114

Date: June 24, 2009

**CUSTOMER NUMBER: 58027**

H.C. Park & Associates, PLC  
8500 Leesburg Pike  
Suite 7500  
Vienna, VA 22182  
Tel: 703-288-5105  
Fax: 703-288-5139  
HCP/RTS/YDC